

CLAIMS

WHAT IS CLAIMED:

1. A method, comprising:

executing a software object;

establishing a security level for said software object;

performing a virtual address based memory access using at least one of said security levels; and

executing said function of said object based upon said virtual address based memory access.

2. The method described in claim 1, wherein executing a software object further comprises using a processor to process software code of said software object.

3. The method described in claim 1, wherein establishing a security level for said software object further comprises assigning a security level relating to a memory access of at least a portion of a memory.

4. The method described in claim 1, wherein performing said virtual address based memory access using at least one of said security level further comprises:

establishing a secondary table;

receiving a memory access request based upon executing of said software object;

performing said virtual address memory access based upon said memory access request using said secondary table and at least one virtual memory table; and

accessing a portion of a memory based upon said multi-level table access.

5. The method described in claim 4, wherein establishing a secondary table further comprises:

- 5 dividing a physical memory into a plurality of segments;
 determining at least one of said segment to omit from said secondary table and at least one un-omitted segment;
 assigning a default security level to said omitted segment;
 assigning a security level to said un-omitted segment; and
 correlate at least one assigned segment with a virtual memory location.

6. The method described in claim 4, wherein performing said virtual address memory access based upon said memory access request further comprises:

- 15 determining at least one security level that corresponds to a segment in said secondary table;
 verifying a match between an execution security level to a security level associated with a segment being accessed in response to an execution of said object;
 determining a virtual memory address based upon said secondary table in response to a match between said execution security level and said security level associated with said segment being accessed; and
 locating a physical memory location corresponding to a virtual memory address.

7. The method described in claim 6, wherein determining at least one security level that corresponds to said segment in said secondary table further comprises:

determining a physical address from said virtual memory table;
 determining a segment being executed based upon said physical address; and
 defining a current security level based upon said determining of said segment being
 executed.

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8. A method, comprising:
 executing a software object;
 establishing a security level for said software object;
 establishing a secondary table;
 receiving a memory access request based upon said executing of said software object;
 determining at least one security level that corresponds to a segment in said secondary
 table based upon a virtual address; and
 accessing a portion of a memory based upon said security level and said virtual
 address.

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9. The method described in claim 8, wherein executing a software object further
 comprises using a processor to process software code of said software object.

10. The method described in claim 8, wherein establishing a security level for said
 software object further comprises assigning a security level relating to a memory access of at
 least a portion of a memory.

11. The method described in claim 8, wherein determining at least one security
 level that corresponds to a segment in said secondary table comprises:

determining a physical address from said virtual memory table;
 determining a segment being executed based upon said physical address; and
 defining a current security level based upon said determining of said segment being
 executed.

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12. An apparatus, comprising:

means for executing a software object;

means for establishing a security level for said software object;

means for performing a virtual address based memory access using at least one of said
 security levels; and

means for executing said function of said object based upon said virtual address based
 memory access.

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13. An apparatus, comprising:

a processor coupled to a bus;

means for coupling at least one software object to said processor;

a memory unit; and

a memory access interface coupled to said bus and said memory unit, said memory
 access interface to provide said processor a virtual address based access of at
 least a portion of said memory unit based upon at least one security level, in
 response to said processor executing said software object.

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14. The apparatus of claim 13, wherein said processor comprises at least one
 microprocessor.

15. The apparatus of claim 13, wherein said memory access interface comprises a virtual memory access table coupled with a secondary table, said memory access interface to provide a virtual memory addressing scheme to access at least one portion of said memory unit based upon a security level.

16. The apparatus of claim 13, wherein said memory unit comprises at least one of a magnetic tape memory, a flash memory, a random access memory, and a memory residing on a semiconductor chip.

17. A computer readable program storage device encoded with instructions that, when executed by a computer, performs a method, comprising:

- executing a software object;
- establishing a security level for said software object;
- performing a virtual address based memory access using at least one of said security levels; and
- executing said function of said object based upon said virtual address based memory access.

18. The computer readable program storage device encoded with instructions that, when executed by a computer, performs the method described in claim 17, wherein executing a software object further comprises using a processor to process software code of said software object.

19. The computer readable program storage device encoded with instructions that, when executed by a computer, performs the method described in claim 17, wherein establishing a security level for said software object further comprises assigning a security level relating to a memory access of at least a portion of a memory.

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20. The computer readable program storage device encoded with instructions that, when executed by a computer, performs the method described in claim 17, wherein performing a virtual address based memory access using at least one of said security level further comprises:

establishing a secondary table;

receiving a memory access request based upon executing of said software object;

performing a virtual address memory access based upon said memory access request using said secondary table and at least one virtual memory table; and
accessing a portion of a memory based upon said multi-level table access.

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21. The computer readable program storage device encoded with instructions that, when executed by a computer, performs the method described in claim 20, wherein establishing a secondary table further comprises:

dividing a physical memory into a plurality of segments;

determining at least one of said segment to omit from said secondary table and at least one un-omitted segment;

assigning a default security level to said omitted segment;

assigning a security level to said un-omitted segment; and

correlate at least one assigned segment with a virtual memory location.

22. The computer readable program storage device encoded with instructions that, when executed by a computer, performs the method described in claim 20, wherein performing a virtual address memory access based upon said memory access request further

5 comprises:

determining at least one security level that corresponds to a segment in said secondary table;

verifying a match between an execution security level to a security level associated with a segment being accessed in response to an execution of said object;

determining a virtual memory address based upon said secondary table in response to a match between said execution security level and said security level associated with said segment being accessed; and

locating a physical memory location corresponding to a virtual memory address.

15 23. The computer readable program storage device encoded with instructions that, when executed by a computer, performs the method described in claim 22, wherein determining at least one security level that corresponds to a segment in said secondary table comprises:

determining a physical address from said virtual memory table;

20 determining a segment being executed based upon said physical address; and

defining a current security level based upon said determining of said segment being executed.